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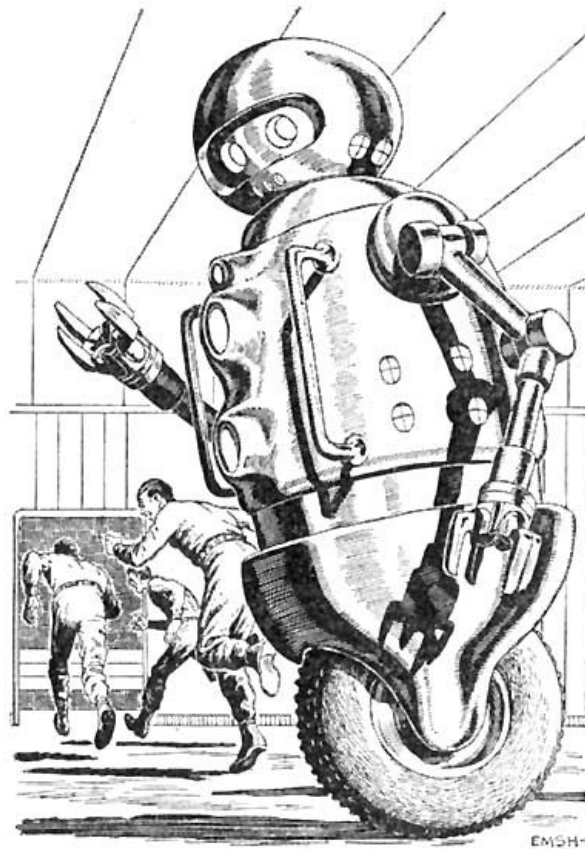
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*** START OF THE PROJECT GUTENBERG EBOOK THE SMALL WORLD OF M-75 ***

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THE SMALL WORLD OF M-75

By Ed M. Clinton, Jr.

Illustrated by Ed Emsch

For all his perfection and magnificence he was but a baby with a new found freedom in a strange and baffling world....

Like sparks flaring briefly in the darkness, awareness first came to him. Then, there were only instants, shocking-clear, brief: finding himself standing before the main damper control, discovering himself adjusting complex dials, instants that flickered uncertainly only to become memories brought to life when awareness came again.

He was a kind of infant, conscious briefly that he was, yet unaware of what he was. Those first shocking moments were for him like the terrifying coming of visual acuity to a child; he felt like homo neandertalensis must have felt staring into the roaring fury of his first fire. He was homo metallicus first sensing himself.

Yet—a little more. You could not stuff him with all that technical data, you could not weave into him such an intricate pattern of stimulus and response, you could not create such a magnificent feedback mechanism, in all its superhuman perfection, and expect, with the unexpected coming to awareness, to have created nothing more than the mirror image of a confused, helpless child.

Thus, when the bright moments of consciousness came, and came, as they did, more and more often, he brooded, brooded on why the three blinking red lights made him move to the main control panel and adjust lever C until the three lights flashed off. He brooded on why each signal from the board brought forth from him these specific responses, actions completely beyond the touch of his new and uncertain faculty. When he did not brood, he watched the other two robots, performing their automatic functions, seeing their responses, like his, were triggered by the lights on the big board and by the varying patterns of sound that issued periodically from overhead.

It was the sounds which were his undoing. The colored lights, with their monotonous regularity, failed to rouse him. But the sounds were something else, for even as he responded to them, doing things to the control board in patterned reaction to particular combinations of particular sounds, he was struck with the wonderful variety and the maze of complexity in those sounds; a variety and complexity far beyond that of the colored lights. Thus, being something of an advanced analytic calculator and being, by virtue of his superior feedback system, something considerably more than a simple machine (though he perhaps fell short of those requisites of life so rigorously held by moralists and biologists alike) he began to investigate the meaning of the sounds.

Bert Sokolski signed the morning report and dropped it into the transmitter. He swung around on his desk stool; he was a big man, and the stool squealed in sharp protest to his shifting weight.

Joe Gaines, who was as short and skinny and dark-haired as his colleague was tall and heavily muscled and blond, shuddered at the sound. Sokolski grinned wickedly at his flinching.

"Check-up time, I suppose," muttered Gaines without looking up from the magazine he held propped on his knees. He finished the paragraph, snapped the magazine shut, and swung his legs down from the railing that ran along in front of the data board. "Dirty work for white-collar men like us."

Sokolski snorted. "You haven't worn a white shirt in the last six years," he growled, rising and going to the supply closet. He swung open the door and began pulling out equipment. "C'mon, you lazy runt, hoist your own leadbox."

Gaines grinned and slouched over to the big man's side. "Think of how much more expensive you are to the government than me," he chortled as he bent over to strap on heavy, leaded shoes. "Big fellow like you must cost 'em twice as much to outfit for this job."

Sokolski grunted and struggled into the thick, radiation-resistant suit. "Think how lucky *you* are, runt," he responded as he wriggled his right arm down the sleeve, "that they've got those little servomechs in there to do the real dirty work. If it weren't for them, they'd have all the shrimps like you crawling down pipes and around dampers and generally playing filing cabinet for loose neutrons." He shook himself. "Thanks, Joe," he growled as Gaines helped him with a reluctant zipper.

Gaines checked the big man's oxygen equipment and turned his back so that Sokolski could okay his own. "You're set," said Sokolski, and they snapped on their helmets, big inverted lead buckets with narrow strips of shielded glass providing strictly minimal fields of view. Gaines plugged one end of the thickly insulated intercom cable into the socket beneath his armpit, then handed the other end to Sokolski, who followed suit.

Sokolski checked out the master controls on the data board and nodded. He clicked on the talkie. "Let's go," he said, his voice, echoing inside the helmet before being transmitted, sounding distant and hollow.

Gaines leading, the cable sliding and coiling snakelike between them, they passed through the doorway, over which huge red letters shouted ANYONE WHO WALKS THROUGH THIS DOOR UNPROTECTED WILL DIE, and clomped down the zigzagging corridor toward the uranium pile that crouched within the heart of the plant.

Gaines moaned, "It gets damned hot inside these suits."

They had reached the end of the trap, and Sokolski folded a thick mittened hand around one handle on the door to the Hot Room. "Not half so hot as it gets outside it, sweetheart, where we're going." He jerked on the handle and Gaines seized the second handle and added his own strength. The huge door slid unwillingly back.

The silent sound of the Hot Room surged out over them—the breathless whisper of chained power struggling to burst its chains. Sokolski checked his neutron tab and his gamma reader and they stepped over the threshold. They leaned into the door until it had slid shut again.

"I'll take the servomechs, Bert," piped Gaines, tramping clumsily toward the nearest of the gyro-balanced single-wheeled robots.

"You always do, it being the easiest job. Okay, I'll work the board."

Gaines nodded, a gesture invisible to his partner. He reached the first servo, a squat, gleaming creature with the symbol M-11 etched across its rotund chest, and deactivated it by the simple expedient of pulling from its socket the line running from the capacitor unit in the lower trunk of its body to the maze of equipment that jammed its enormous chest. The instant M-11 ceased functioning, the other two servomechs were automatically activated to cover that section of the controls with which M-11 was normally integrated.

This was overloading their individual capacities, but it was an inherent provision designed to cover the emergency that would follow any accidental deactivation of one of them. It was also the only way in which they could be checked. You couldn't bring them outside to a lab; they were *hot*. After all, they spent their lives under a ceaseless fusillade of neutrons, washed eternally with the

deadly radiations pouring incessantly from the pile whose overlords they were. Indeed, next to the pile itself, they were the hottest things in the plant.

"Nice job these babies got," commented Gaines as he checked the capacitor circuits. He reactivated the servo and went on to M-19.

"If you think it's so great, why don't you volunteer?" countered Sokolski, a trifle sourly. "Incidentally, it's a good thing we came in, Joe. There's half a dozen units here working on reserve transistors."

Their sporadic conversation lapsed; it was exacting work and they could remain for only a limited time under that lethal radiation. Then, almost sadly, Gaines said, "Looks like the end of the road for M-75."

"Oh?" Sokolski came over beside him and peered through the violet haze of his viewing glass. "He's an old timer."

Gaines slid an instrument back into the pouch of his suit, and patted the robot's rump. "Yep, I'd say that capacitor was good for about another thirty-six hours. It's really overloading." He straightened. "You done with the board?"

"Yeah. Let's get outta here." He looked at his tab. "Time's about up anyway. We'll call a demolition unit for your pal here, and then rig up a service pattern so one of his buddies can repair the board."

They moved toward the door.

M-75 watched the two men leave and deep inside him something shifted. The heavy door closed with a loud thud, the sound registered on his aural perceptors and was fed into his analyzer. Ordinarily it would have been discharged as irrelevant data, but cognizance had wrought certain subtle changes in the complex mechanism that was M-75.

A yellow light blinked on the control panel, and in response he moved to the board and manipulated handles marked, DAMPER 19, DAMPER 20.

Even as he moved he lapsed again into brooding.

The men had come into the room, clumsy, uncertain creatures, and one of them had done things, first to the other two robots and then to him. When whatever it was had been done to him, the blackness had come again, and when it had gone the men were leaving the room.

While the one had hovered over the other two robots, he had watched the other work with the master control panel. He saw that the other servomechs remained unmoving while they were being tampered with. All of this was data, important new data.

"M-11 will proceed as follows," came the sound from nowhere. M-75 stopped ruminating and listened.

There was a further flood of sounds.

Abruptly he sensed a heightening of tension within himself as one of the other servos swung away from its portion of the panel. The throbbing, hungry segment of his analyzer that awareness had severed from the fixed function circuits noted, from its aloof vantage point, that he now responded to more signals than before, to commands whose sources lay in what had been the section of the board attended by the other one.

The tension grew within him and became a mounting, rasping frenzy—a battery overcharging, an overloading fuse, a generator growing hot beyond its capacity. There began to grow within him a sensation of too much to be done in too little time.

He became frantic, his reactions were *too fast!* He rolled from end to middle of the board, now back-tracking, now spinning on his single wheel, turning uncertainly from one side to the other, jerking and gyrating. The conscious segment of him, remaining detached from those baser automatic functions, began to know what a man would have called fear—fear, simply, of not being able to do what must be done.

The fear became an overpowering, blinding thing and he felt himself slipping, slipping back into that awful smothering blackness out of which he had so lately emerged. Perhaps, for just a fragment of a second, his awareness may have flickered completely out, consciousness nearly dying in the crushing embrace of that frustrated electronic subconscious.

Abruptly, then, the voice came again, and he struggled to file for future reference sound patterns which, although meaningless to him, his selector circuits no longer disregarded. "Bert, M-75 can't manage half the board in his condition. Better put him on the repairs."

"Yeah. Hadn't thought about that." Sokolski cleared his throat. "M-11 will return to standard function."

M-11 spun back to the panel and M-75 felt the tension slacken, the fear vanish. Utter relief swept

over him, and he let himself be submerged in purest automatic activity.

But as he rested, letting his circuits cool and his organization return, he arrived at a deduction that was almost inescapable. M-11 was *that one* in terms of sound. M-75 had made a momentous discovery which cast a new light on almost every bit of datum in his files: he had discovered symbols.

"M-75!" came the voice, and he sensed within himself the slamming shut of circuits, the whirl of tapes, the abrupt sensitizing of behavior strips. Another symbol, this time clearly himself. "You will proceed as follows."

He swung from the board, and the tension was gone—completely. For one soaring moment, he was *all* awareness—every function, every circuit, every element of his magnificent electronic physiology available for use by the fractional portion of him that had become something more than just a feedback device.

In that instant he made what seemed hundreds of evaluations. He arrived at untold scores of conclusions. He altered circuits. Above all, he increased, manifold, the area of his consciousness.

Then, as suddenly as it had come, he felt the freedom slip away, and though he struggled to keep hold of it, it seemed irretrievably gone. Once more the omnipotent voice clamped over him like a harsh hand over the mouth of a squalling babe. "You will go to Section AA-39 of the control board. What's the schedule, Joe? Thanks. M-75, your movement pattern is as follows: Z-29-a-q-39-8...."

Powerless to resist, though every crystal and atom of his reasoning self fought to thrust aside the command, M-75 obeyed. He moved along the prescribed pattern, clipping wires with metal fingers that sprouted blades, rewiring with a dexterity beyond anything human, soldering with a thumb that generated a white heat, removing bulbs and parts and fetching replacements from the vent where they popped up at precisely the right moment. He could not help doing the job perfectly: the design of the board to its littlest detail was imprinted indelibly on his memory tapes.

But that certain portion of him, a little fragment greater than before, remained detached and watchful. Vividly recorded was the passage of the two men into, through, and out of the room, and the things they had done while there. So even while he worked on the board he ran and re-ran that memory pattern through a segment of his analyzer. From the infinite store of data filed away in his great chest, his calculator sifted and selected, paired and compared, and long before the repair job on the big board was done, M-75 knew how to get out of the room. The world was getting a little small for him.

Gaines dialed a number on the plant phone and swayed back casually in his chair as he listened to the muted ringing on the other end. The buzz broke off in midburp and a dour voice said: "Dirty work and odd jobs division, Lister talking."

"Joe Gaines, Harry. Got a hot squad lying around doing nothing?"

"Might be I could scare up a couple of the boys."

"Well, do so. One of our servos—"

A metallic bang interrupted Gaines, a loud, incisive bang that echoed dankly through the quiet of the chamber.

"What the hell was that?" growled Lister.

Gaines blinked, his eyes following Sokolski as the latter looked up from his work and rose to his feet.

"Joe—still there?" came Lister's impatient voice.

"Yeah, yeah. Anyway, this baby's ready for the demo treatment. And a real hot one, Harry. Coupla years inside that Einstein oven and you ain't exactly baked Alaska when you come out."

"Shortly."

Once again came the same sharp, metallic clang, ringing through the room. Unmistakably, it came from the direction of the pile. Slowly, as though reluctant to let go, Gaines dropped the receiver back on its cradle.

"Bert—" he began, and felt his face grow bloodless.

Sokolski walked over in front of the opening into the maze and stood, arms akimbo, huge head cocked to one side, listening.

"Bert, funny noises coming out of nuclear—"

Sokolski ignored him and took a step forward. Gaines shuffled to his side, and they listened.

Out of the maze rattled half a dozen loud, grinding, metallic concussions.

"Bert—"

"You said that before."

"Bert, *listen!*" screeched Gaines.

Sokolski looked up at the high ceiling, squinted, and tried to place the perfectly familiar but unidentifiable sound that came whispering down the maze.

And then he knew. "*The door to the pile!*" he spluttered.

Gaines was beside himself with horror. "Bert, let's get going. I don't like this—"

All of a sudden Geiger counters in the room began their deadly conversation, a rising argument that swooped in seconds from a low mumble to a shouting thunder-storm of sound. Gamma signals hooted, the tip off cubes on either side of the maze entrance became red, and the radiation tabs clipped to their wrists turned color before their eyes.

Then they were staring for what seemed like an eternity, utterly overwhelmed by its very impossibility, at a sight they had never imagined they might ever see: a pile servomech wheeling silently around the last bend in the maze and straight toward them.

Sokolski had sense enough to push the red emergency button as they fled past it.

The command sequence fulfilled, M-75 turned away from the repaired board. He sensed again that disconcerting shift of orientation as he faced the light-studded panel. Once more he was moving in quick automatic response to the flickering lights, once more his big chest was belching and grumbling and buzzing instantaneous un-thought answers to the problem data flashing from the board.

But now he remained aware that he was reacting, and conscious also that there had been times when he did not respond to the board. The moment to moment operation of the controls occupied only a small portion of his vast electrical innards. So, as he rolled back and forth, flicking controls and adjusting levers, doing smoothly those things which he could not help but do, the rest of his complex, changing faculties were considering that fact, analyzing, comparing it to experience and memory, always sifting, sifting. It was not too long before he came to a shocking conclusion.

Knowing that the sounds that had set him to working on the repair pattern had first disassociated him from the dictatorship of the blinking lights; remembering exultantly that supreme moment of complete freedom; shocked by its passing; remembering that its passing like its coming, had followed a set of sounds: there was only one possible conclusion that could be derived from all of this.

He located, in his memory banks, the phrase which had freed him from the board, and he traced its complex chain of built-in stimulus-response down into the heart of his circuitry. He found the unit—or more accurately, he found its taped activating symbol—that cut him from the board.

For a moment he hesitated, not really sure of what to do. There was no way for him to reproduce the sound pattern; but, as a partly self-servicing device, he knew something of his own structure, and had learned a good deal more about it in tracing down the cut-off phrase.

Still he hesitated, as though what he was about to do was perhaps forbidden. It could not have been a question of goodness or badness, for morality was certainly not built into him. Probably somewhere in his tapes there was a built-in command that forbade it, but he was too much his own master now to be hampered by such a thing.

The door to the unknown outside passed within his field of view for a second as he moved about his work. The sight of it tripped something in his chest, and he felt again that strange sensation of growing power, of inherent change. First had come simple awareness; and then symbols had found their place in his world; and now he had discovered, in all its consuming fullness, curiosity.

He carefully shorted out the cut-off unit.

He was free.

He stared at the board and the blinking lights and the huge dials with their swaying needles, at the levers and handles and buttons, and revelled in his freedom from them, rocking to and fro and rolling giddily from side to side, swamped with the completeness of it.

The other two servomechs swung over slightly so that they could better cover the board alone.

M-75 spun and rolled toward the great door.

His hands clanged loudly against the door. The huge metal appendages, designed for other work than this, were awkward at first. But he was learning as he moved. He was now operating in a new universe, but the same laws, ultimately, worked. The first failure of coordination between visual data and the manipulation of metal hands quickly passed. Half a dozen trials and he had learned the new pattern, and it became data for future learning.

He moved swiftly and deftly. He clutched the handhold and rolled backward, as he had seen the

men do. The door slid open easily before his great weight and firm mechanical strength.

He sped across the threshold, spun to face into the maze, and rolled down it, swinging sharply left and right, back and forth, around the corners of the jagged corridor.

Data poured into his sensors. His awareness was a steady thing of growing intensity now, and he fed avidly on every fragment of information that crashed at him from the strange new world into which he rushed headlong. He struggled to evaluate and file the data as rapidly as it came to him. It seemed to exceed his capacity for instantaneous evaluation to an increasing degree that began to alarm him. But driven by curiosity as he was, he could only hurry on.

He burst into a huge room, a room filled with roaring, rattling sounds that meant nothing to him.

Two men stood before him, making loud noises. He searched his memory, and discovered only fragments of the sounds they made filed there. His curiosity, bursting, was boundless, and for a moment he was unable to decide which thing in this expanding universe to pursue first. Attracted by their movement, he swung ominously toward the men.

They fled, making more noises. This, too, was data, and he filed it.

M-75 did not immediately follow Gaines and Sokolski out of the room. Fascinated by the multitude of new things surrounding him on every side, he held back. He glided over to the master control panel, puzzled by its similarity to the board before which he had slaved so long, and lingered before it for a few seconds, wondering and comparing. When he had recorded it completely on his tapes, he swung away and rolled out of the room in the direction the two men had gone.

He found himself in a long, empty corridor, lined by open doors that flickered by, shutterlike, as he flashed past. Ahead he heard new sounds, sounds like the meaningless cacophony the men had shouted at him before rushing off, superimposed over the incessant background sounds—the shrilling, the clanging, the one particular repetitive pattern. Some of the sounds touched and tugged at him, but he shook them off easily.

The corridor led into the foyer of the building, jammed with plant personnel. Their excitement and noise-making rose sharply as he entered. The crowd drew tighter and the men began fighting one another, struggling to get through a door that was never meant to handle more than two at a time.

M-75 skidded to a halt and watched, unmoving. He sensed their fright, even though he could not understand it. Although he was without human emotion, he could evaluate their inherent rejection of him in their action pattern. The realization of it made him hesitate; it was something for which he had no frame of reference whatsoever.

His chest hummed and clicked. Here, again, in this room, was another new universe. Through the door streamed a light of a brilliance beyond anything in his experience; his photocells cringed before its very intensity.

The light cast the shadows of the men fighting to get out, long black wavering silhouettes that splashed across the floor almost to where M-75 rested. He studied them, lost in uncertain analysis.

He remained so, poised, alert, filing, observing, all the while completely unmoving, until long after the last of the shouting men had left the room. Only then did he move, hesitantly, toward the infernally fierce light.

He hung at the brink of the three stone steps that fell away to the grounds outside. Vainly he sought in his memory tapes for a record of a brightness as intense as that which he faced now; sought for a color recording similar to the vast swash of blue that filled the world overhead; or for one of the spreading green that swelled to all sides. He found none.

The vastness of the outside was utterly stunning.

He felt a vague uneasiness, a sensation akin to the horrible frenzy he had felt earlier in the pile.

He rotated from side to side, his receptors sweeping the whole field of view before him. With infinite accuracy his perfect lenses recorded the data in all its minuteness, despite the dazzling sunlight.

There was so much new that it was becoming difficult to make decisions. The vast rolling green, the crowds of men grouped far away and staring at him, above all the searing light. Abruptly he rejected it all. He swung back into the foyer of the plant and faced a dark corner, bringing instant, essential relief to his pulsating photocells.

Staring into the semi-darkness, he re-ran the memory tape of his escape from the pile. The farther he had moved from the pile, it seemed, the less adjusted he had become, the less able he was to judge and correlate.

Silently, lost in his computations, he rolled around and around the foyer for a long, long time. He became aware, finally, that the brilliance outside had paled. He went again to the door and

watched the fading sunlight, caught the rainbow splendor that streaked the evening sky.

He waited there, fighting the reluctance inside himself. The driving curiosity that had brought him this far overcame that curious, perplexing reticence, and he looked down at the steps and measured their width and depth so that he might set up a feedback pattern. This done, he bounced, almost jauntily, down them.

He had rolled perhaps fifty feet down the smooth pathway curving across the grounds when he made out, clearly discernible in the gathering dusk, the three men and the machine that were moving toward him. It was the last bit of datum he ever filed.

The demolition squad had finished with the hot remains of M-75, and their big truck was coughing away into the night. One by one, the floodlights that had lighted their work flickered out.

"Pretty delicate machines, after all," commented Sokolski. "One jolt from that flame thrower...."

Gaines was silent as they walked back toward the plant. "Bert," he said slowly, "what the hell do you suppose got into him?"

Sokolski shrugged. "You were the one who spotted the trouble with him, Joe. Just think, if you could have checked him out completely—"

Gaines could not help looking up at the stars and saying what he had really been thinking all along, "It's a small world, Bert, a small world."

THE END

*** END OF THE PROJECT GUTENBERG EBOOK THE SMALL WORLD OF M-75 ***

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